IN THE CLAIMS

Please make the following amendments to the claims:

1. (Currently Amended) A filter comprising:

at least one multiplier to multiply samples of an input discrete-time signal by a set of filter weights to provide a resulting discrete-time signal, wherein the filter weights are the convolution of a set of Nyquist filter weights with a set of pre-equalizer filter weights; ~~and~~

at least one adder to add samples of the resulting discrete-time signal;

a digital-to-analog converter to convert the added samples to analog values; and

an interface to transmit the analog values, wherein each of the at least one multiplier is a 2 bit by J bit multiplier, where J is greater than two.

2.-10. (Canceled)

11. (Currently Amended) A method to provide Nyquist filtering and pre-equalization before transmitting data, the method comprising:

multiplying samples of an input discrete-time signal by a set of filter weights to provide a resulting discrete-time signal, wherein the filter weights are a convolution of a set of Nyquist filter weights with a set of pre-equalizer filter weights; and

adding samples of the resulting discrete-time signal to provide an output discrete-time signal;

converting the added samples to analog values; and

transmitting the analog values, wherein the multiplication is 2 bit by J bit multiplication, where J is greater than two.

12.-15. (Canceled)

16. (Currently Amended) A computer system comprising:

a modem comprising

a symbol mapper to provide an input discrete-time signal; and

a filter comprising:

at least one multiplier to multiply samples of the input discrete-time signal by a set of filter weights to provide a resulting discrete-time signal, wherein the filter weights are a convolution of a set of Nyquist filter weights with a set of pre-equalizer filter weights; and

at least one adder to add samples of the resulting discrete-time signal to provide an output discrete-time signal, wherein the multipliers are 2 bit by J bit multipliers, where J is greater than two;

a D/A converter to convert the discrete-time signal to an analog signal; and

a cable interface to couple the analog signal onto a cable.

17.-18. (Canceled)

19. (New) An apparatus for processing a series of two-bit binary samples comprising:

means for delaying at least one sample so that a plurality of samples can be manipulated simultaneously;

means for multiplying a plurality of samples by a plurality of coefficients to produce a plurality of products;

means for computing a sum of the plurality of products;

means for converting the sum to an analog value; and

means for coupling the analog value onto a cable;

wherein the plurality of coefficients is a convolution of a set of Nyquist filter weights with a set of pre-equalizer filter weights.

20. (New) The apparatus of claim 19 wherein each coefficient of the plurality of coefficients is a 10-bit number.